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BENTHOS INVESTIGATIONS IN THE TISZA STRETCH BETWEEN TISZAFÜRED—KISKÖRE

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Abstract

He has continued the investigations begun in 1971 in the Dead Arm at Tiszafüred and in the Tisza between Tiszafüred and Kisköre. The conclusion is drawn from the change in zoobentos concerning the composition of the benthos developing in the reservoir. As a result of the impoundment started in 1973, in the reaches dammed the amount of Oligochaetae increased. In the investigated dead arm, on the other hand, Chironomidae predominate. As a large part of the vegetation in the flood-plain (undergrowth, shrubs) got under water-cover as organic materials, and the water-level slowly rises, thus in the resevoir the development of a rich zoobenthos is to be expected, under the dominance of Chironomidae.

Materials and Methods

For the quantitative and qualitative investigation of the benthos biomass we had to choose a date when the quantity of the Chironomida larvae could be measured in a comparatively real way, the development of imagos and the engorgement by various fish species also discontinue. The sprin months, because of different causes, are not considered to be suitable for this. Owing to the high water it is, namely, difficult to find the constantly water-covered part of the bed where the benthos-forming animals reside. The flood often leaves the area only at the end of June. And in this time, the spring-summer generation of the midge species already sent out its swarms.

Owing to the causes discussed, October was chosen for establishing the ratio of the individual numbers of Oligochaeta and Chironomida. Then the temperature of the river water is about + 10 C. At a temperature like this, the zoobenthos is no more consumed by fishes, neither the larvae of the mud-dwelling Chironomida species develop into imagos.

At the right and left riversides, in different distances from the lines of these, we have taken ten samples on every occasion each. Our sampling sites were: the Dead Arm at the bathing-place of Tiszafüred and, in the Tisza, at Tiszafüred (428 river-km) and above Kisköre (406 river-km). Till 1975 we worked with a slime-gripper of 55.5 sq.cm and following this, with one of 78.5 sq.cm footing area.

Results

Of the Chironomida species, found in the river stretch investigated before damming, an account was given by SZITÓ (1973, 1974). On the basis of his investigations, the ratio of Chironomidae and Oligochaetae is shown in Figure 1.

In 1971—1972, the ratio of Oligochaetae and Chironomidae can be considered as constant. Already in the year of damming, 1973, the individual number of Oli-

gochae tae increased in a Lmall degree. It is not likely that this increase was caused by damming. Their ratio increased in 1974 by 12, in 1975 by 1. while in 1976 by 24 per cent, taking the state of 1973 as 100 per cent.

In the Dead Arm, the dominance of Oligochaetae was expected. It is visible in the Figure that, contrary to the expectation, in 1970 the value of 23, in 1973 that of 47 and then, with some fluctuation, that of 30 to 40 per cent of the biomass was found. Both in the dead arm and in the Tisza (in the stretch investigated) a benthos biomass was examined consumed by the different animal species mainly by fish.

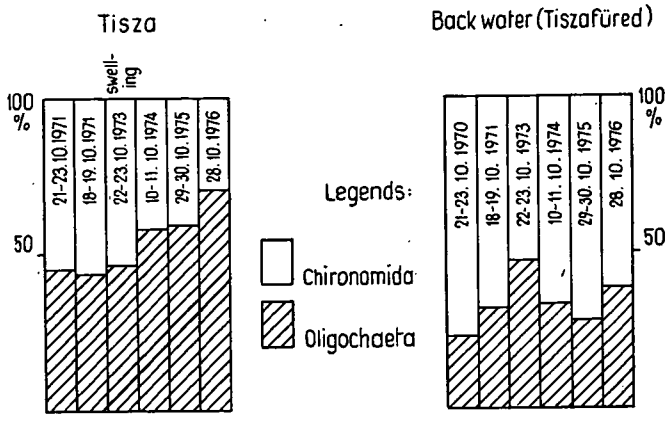

Fig. 1. Change in the ratio of Oligochaetae-Chironomidae (1970—1976).

Conclusions

The damming in the investigated stretch of the Tisza resulted in increasing the ratio of Oligochaetae. In this the slower water motion has certain part, ensuring better essential conditions to the present species than the earlier greater water speed did.

Among the Chironomidae, *Polypedilum nubeculosum* Mg. is dominant, *Chironomus fluviatilis* LENZ is subdominant.

In the Dead Arm, where 50 to 70 per cent of the biomass is formed by Chironomidae, the ratio of the biomass is quite different. Dominant is *Chironomus plumosus*.

The reservoir is shallow. In its areas of 30 to 40 cm water-cover and covered with sedge, submersed vegetation, in case of an adequate oxygen supply, a rich biomass may be expected.

References

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